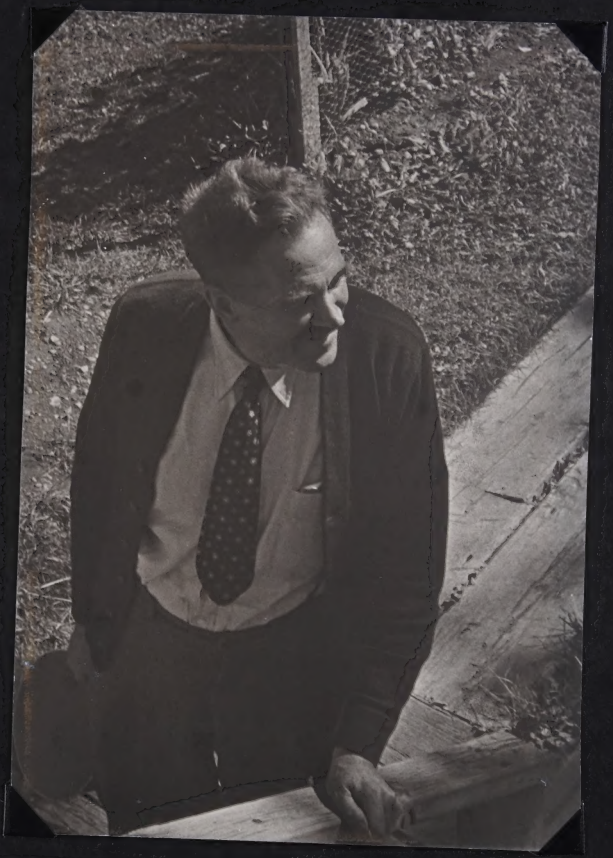
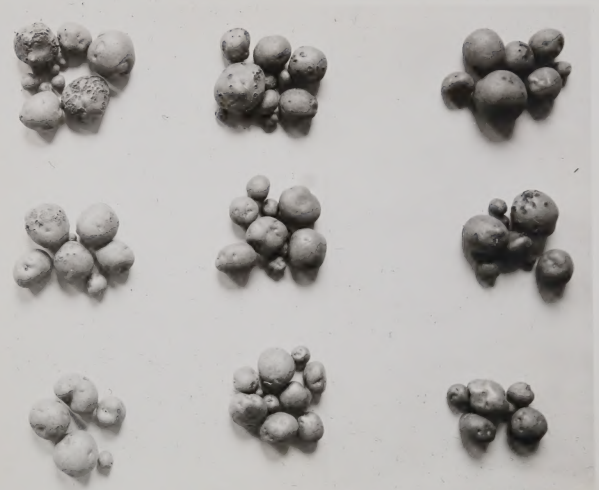
Photographs



Dr. F. A. Wyatt, first Professor of Soils, came to the University of Alberta from Illinois in 1919.

JR 2009



Potato Scab/Sulphur experiment at the Breton Plots in 1929. Check plot (top)---moderately scabby;
1 ton S---less scabby; 3 tons S---practically scab free. See Newton. 1931. Scientific Agriculture 11 (9): 612.

JR 2009

1. Breton-1931. Wheat after peas. Series A. Alsike on borders in foreground. Dr.H.Kohnke in check (Plot 5).F.A.Wyatt in $(NH_4)_2SO_4$ Plot4.

2. Breton-1932. Mixed clovers (Alsike & Sweet) Series C. E.R. McAllister (plot 3) Gordon Wyatt, F.A.Wyatt (plot 2). Note the manure plot (2) shows mostly alsike whereas plot (3) complete has the alsike obscured by the rank growth of sweet clover.

3. Breton-1933. Alfalfa - Series F(June 13). G.V.Jacks,Deputy Dir. Imp. Bur. Soils, standing in Plot 3, F.A.Wyatt in Plot 2.

4. Breton 1933, Alfalfa Series F. (July 22. These are the same two plots as shown in the previous picture, but looking East. F.A. Wyatt in plot 2, B.F.Flesher (operator) in plot 3. Note some sweet clover mixed with the alfalfa.

5. Breton,1934. Mixed clovers (Altaswede & Sweet), nursed with barley (1933). Series A. Looking west. R.E.McAllister in plot 11, Dr.T.H.Mather in plot 10.

6. Breton 1934. Mixed clovers (Altaswede & sweet) Series A. Looking west plot 5 and plot 4 (Amm. sul.).

7. Breton 1934. Mixed hays (Altaswede, Alsike timothy), 5th year. Series G. plot 5 and plot 4.

9. Breton 1937. Mixed clovers. (Altaswede and sweet) Series D. Seeded with barley, 1936. Dr.A.C. Caldwell in fertilized plot (left). B.F.Flesher operator in check plot.

8. Breton 1936. Series C. Mixed Clovers (Altaswede and sweet). Seeded with barley (1935). Plots 5 and 4 looking west.

10. Breton 1939. Altaswede Clover (2nd year) Series A. B.F.Flesher and son, Ken, in check (plot 5). Bill Flesher in Amm.Sul. (plot 4).

11. Breton 1939. Altaswede clover (2nd year). Series A. B.Flesher and son Ken in check (plot 11), and Bill in 16-20 (plot 10).

Co-operative Experiments With Clovers.

12. Karl Deising's farm. Fallis,1932. A.D.Paul in fertilized clovers (Amm.Sul). R.E.McAllister in clovers.Check plot.

13. W.Margerison's Farm,Fallis (1933). The picture shows residual effect from Amm.Sul. applied in 1932.

Yields	1932	1933	Total 2 yrs.
Check	422	1455	1877
Am.Sul.	2425	3560	5985

14. Farm of P. Leginsky,Breton 1939. Clover hay. Dr. V. Ignatieff in check plot. P. Wylie in fertilized plot.

15. Farm of A.O. Hicks, Alder Flats. Clovers - right, P. Wylie in check left - G. DeLong in Amm. Sul. plot.

16. Farm of W. Hungenburg, Edson (1939). Alfalfa, 2nd crop (residual effects from previous applications.)

17. Farm of Mr. Veitch, Fallis, 1934. Gray wooded soil. Peatland barley on back setting first crop, with 16-20 yield about 60 bus.

18. Farm of K. Deising, Fallis, 1933. Wooded soil. Oats on fallow. Fertilizers from left to right. O-Sobelsyn-16-20, Amm.sul,-O.

19. Farm of Mr. Johnson, Clover Bar. July 1933. Black soil G. Park, showing plants from fertilized and check plots.

20. Farm of J.H.McLaughlin, Spruce Grove, July 13. Black soil. Check left - 11-48- right. Note the wheat on the fertilized plots is well headed out - about 1 week's advance of the check.

21. Farm of J.H. McLaughlin, Spruce Grove, July 13,1933. Black soil Wheat on fallow. J.H.McLaughlin in check plot. G.Park in fertilized plot (11-48).

Left to right: Gordon Wyatt, Dr. F. A. Wyatt, Dr. E. Kneen

QR 2009

22. Breton 1930. Series E. Continuous wheat. F. A. Wyatt and Gordon in plot 10 (11-48). Dr. E. Kneen in plot 11 check.

23. Breton July 1933 - General view of part of Expt. Field - from road looking west. Note clover on border in foreground - barley Series A. Oats Series B. The dark band on the grain shows effect of Amm. Sul. (plot 4).

25. Breton, August 28,1933.Reward wheat after clover. Series C. Dr.J.D.Newton in plot 10 (16-20). This is the same plot shown in previous picture but looking west. Note wheat stooks on Series E. seeded same date as Series C.

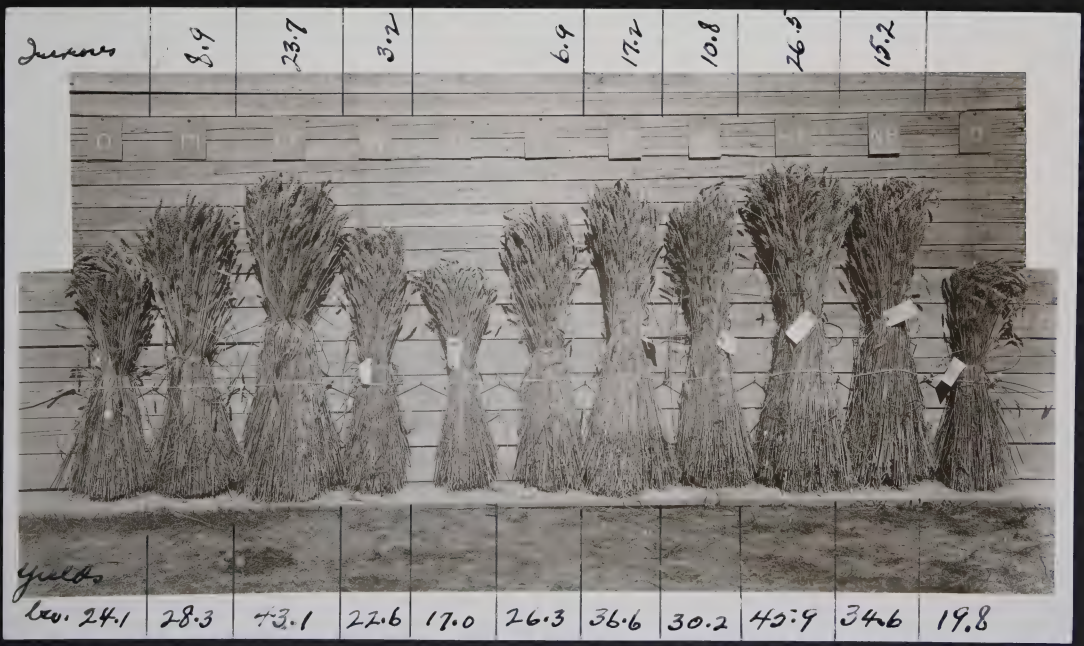
24. Breton July 1933. Wheat after clover Series C. Dr.A. Leahey in plot 10 (16-20). B.F.Flesher (plot 11) check.

26. Breton 1934. Reward wheat after clover. Plowed under. Series D. Compare this with next 3 pictures.

27. Breton 1934. Reward wheat after clover cut for hay. Series D.

29. Breton 1934. Reward wheat, Series D. The bundle on left is after clover, cut for hay. The bundle on right is after clover plowed under. There is little or no difference in the grain yields.

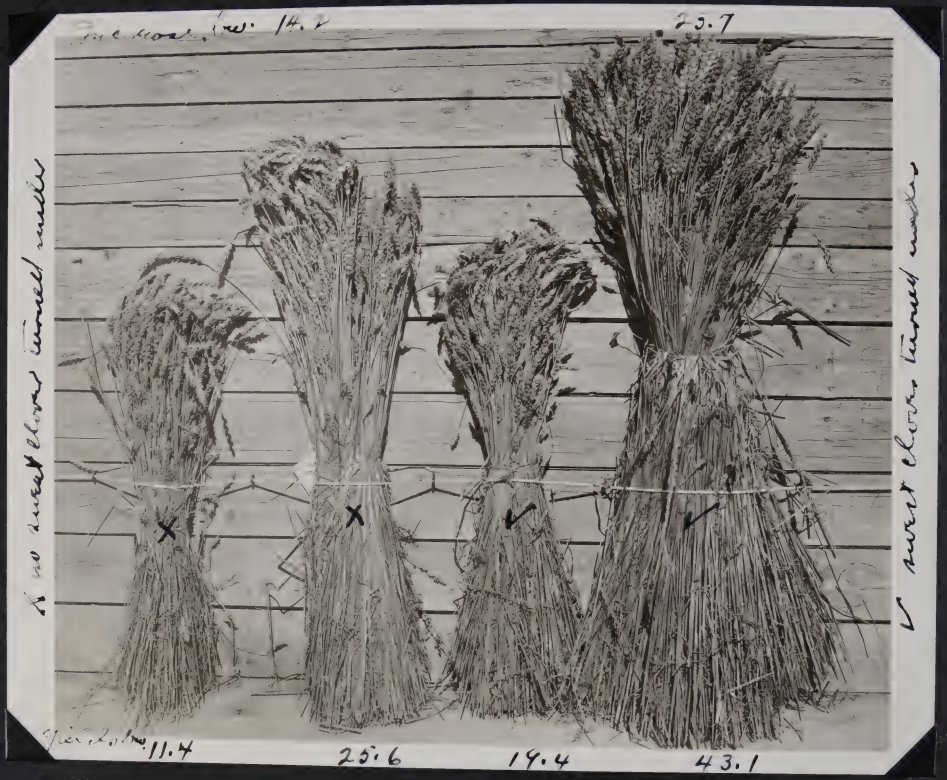
28. Breton 1934. Reward wheat (continuous). Series E. Note smaller yields and less response fertilizers than on Series D.


Inches
8.9
23.7
3.2
6.9
17.2
10.8
26.3
15.2
Yields
Lbs. 24.1
28.3
43.1
22.6
17.0
26.3
36.6
30.2
42.9
34.6
19.8

31. Breton 1932. Reward wheat after clover. Series B. From left to right the plot nos. and fertilizers are:

1	2	3	4	5	6	7	8	9	10	11
0	manure	11-48 K_2SO_4	amm.sul.	0	Lime	Lime Triple	Triple	Manure Triple	11-48	0

32. Breton, 1932. Victory oats. 2nd crop after clovers. Series A. Same fertilizers as for wheat on Series B.- but note the high nitrogen fertilizers plot 4 (amm. sul) and plot 10 (11-48) are relatively better than on the wheat (previous picture).



Probably 1932 (see previous page) Left to right:
Sweet clover harvested for seed, no fertilizer. Wheat yield = 11.4 bpa
Ditto , NPK fertilizer. Wheat yield = 25.6 bpa
Sweet clover turned under, no fertilizer. Wheat yield = 19.4 bpa
JR 2009 Ditto , NPK fertilizer. Wheat yield = 43.1 bpa

33. Breton 1943. Thatcher wheat after clovers. Series D. plots 1-11 This is the 14th crop on these plots since the experiments started...4 of clover, 3 each of oats and barley and 4 of wheat. Ave. yields for all series for 13 years shown below. From left to right plot nos. and fertilizers are:

Plot	1	2	3	4	5	6	7	8	9	10	11
Fertilizer	0	manure	16-20	Amm. sul K_2SO_4	0	Lime	Lime Triple	Triple	Manure 16-20	16-20	0
Ave. yield 13 yrs.	13.0	25.5	33.4	27.1	14.6	18.1	24.3	22.5	34.1	31.7	17.7

34. Breton 1943. Thatcher wheat after fallow (continuous Series E. Plots 1-11. It takes 2 yrs. to produce this crop. Compare with crop shown in (33) where the land is never fallowed. Same fertilizer used.

35. Breton 1943. Thatcher wheat after clover Series D. plots 13-26. These new plots were added to the original eleven in 1938. The plot nos and fertilizers are as follows from left to right:

13	14	15	16	17	18	19	20	21	22	23	24	25	26
0	11-48	2-19	20% super	lime	0	amm. nit.	amm. nit.+ gypsum	Gyp.	0	sod. sul.	pot. sul.	Amm.sul. sod.sul.	0

36. Breton 1943. Thatcher wheat after fallow. Series E. Plots 13-26 See note after (35) for fertilizer treatment. Compare bundle yields with those shown in (35).

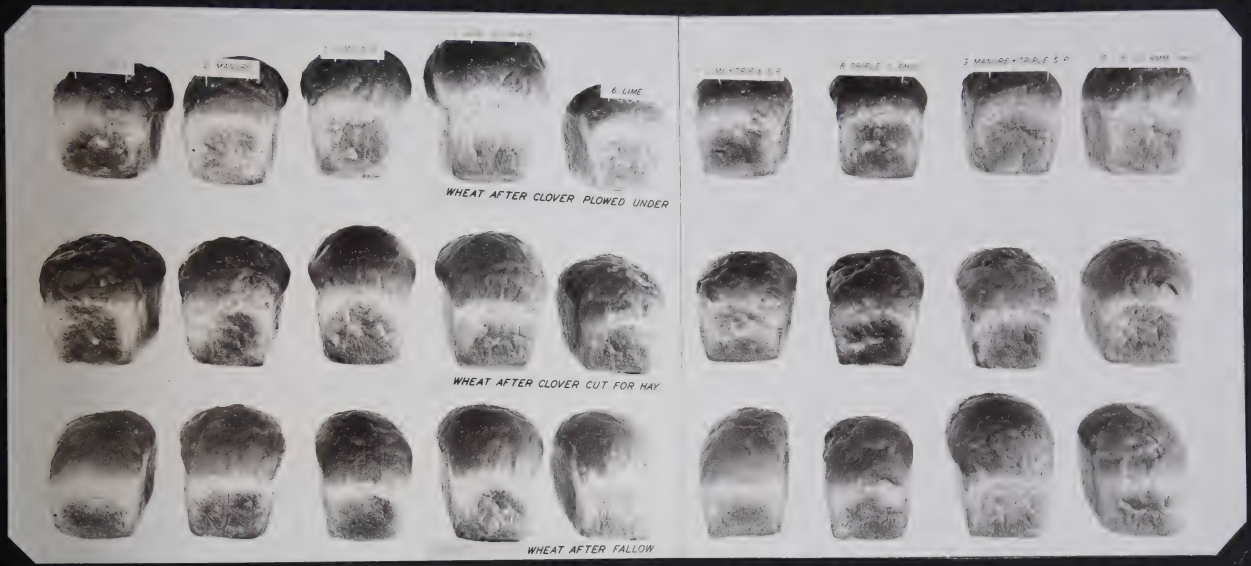
Breton Wheats - Baking pictures.

37. Breton 1938. Reward wheat after clover. Series D. Front row - clover plowed down - back row clover cut for hay. Plots 3 (16-20 + K_2SO_4), 4 (amm.sul) and plot 10 (16-20) are the best loaves, but even these leave much to be desired. Reading from left to right the fertilizers are:

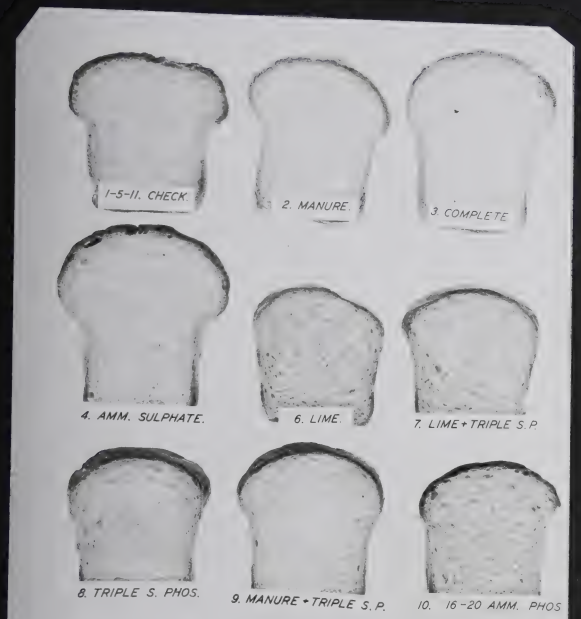
10	9	8	7	6	4	3	2	Checks
16-20	manure 16-20	Triple	Triple Lime	Lime	Amm. Sul.	16-20 K_2SO_4	manure	0

38A. Breton 1938. Four of the loaves shown in 37. Compare best plots 3,4 and 10 with checks.

38B. Breton 1938. Loaves shown in 37. Four of those same loaves are shown in 38A.

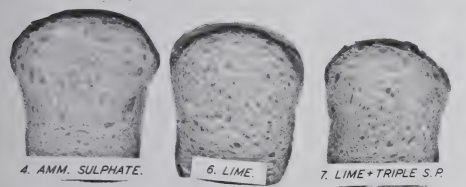


39. Breton 1939. Reward wheat after clovers. Series F. and after fallow. Series E. The season has much influence on the loaf volume but always plots 3,4, 9 and 10 are best. Fertilizer treatments are listed above top row of loaves.



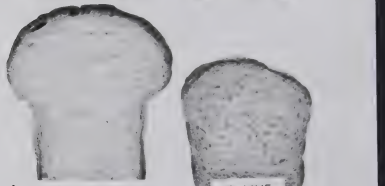
40. Breton 1939. Reward wheat after clover plowed down. Series F.

41. Breton 1939. Reward wheat after clover cut for hay. Series F. These loaves are similar to those shown in 40.



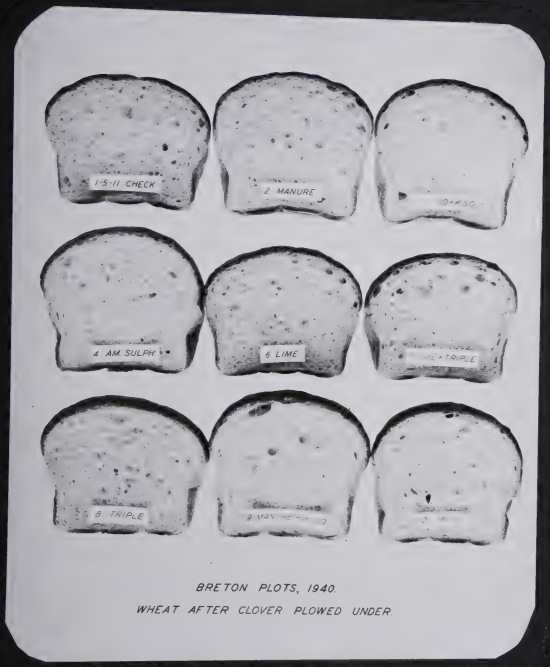
BRETON PLOTS, 1939.
WHEAT AFTER FALLOW

42. Breton 1939. Reward wheat after fallow. Series E. These loaves usually are inferior in all respects to those from grain produced after clovers. The protein is lower and the commercial grade generally better.



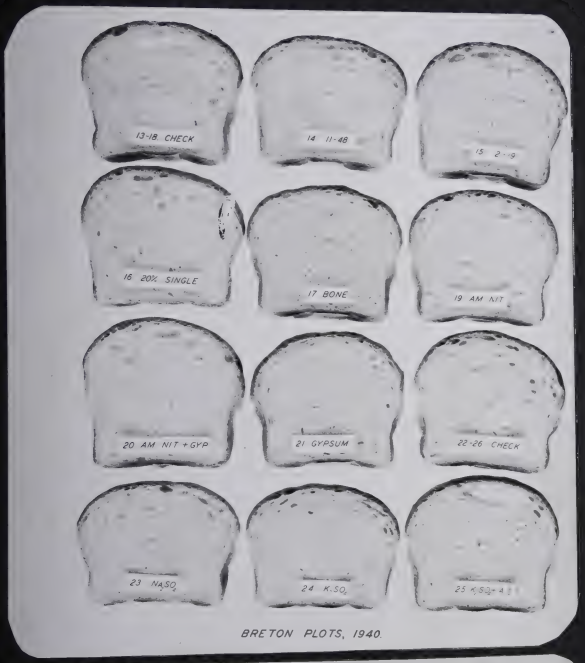
BRETON PLOTS, 1939.
WHEAT AFTER CLOVER PLOWED UNDER

43. Breton 1939. Reward wheat after clover. Series F. Six of the loaves from 40. Note the extreme variations due to fertilizers, even though there is less seasonal variation than in 1938.

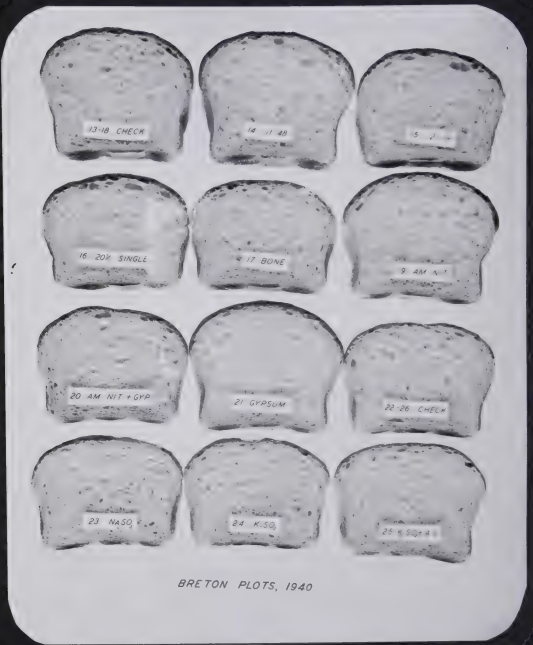


44. Breton 1940. Reward wheat after clover. Series A. This is one of the seasons showing smaller variations in loaf volume, but the loaves are much better than for Series E.

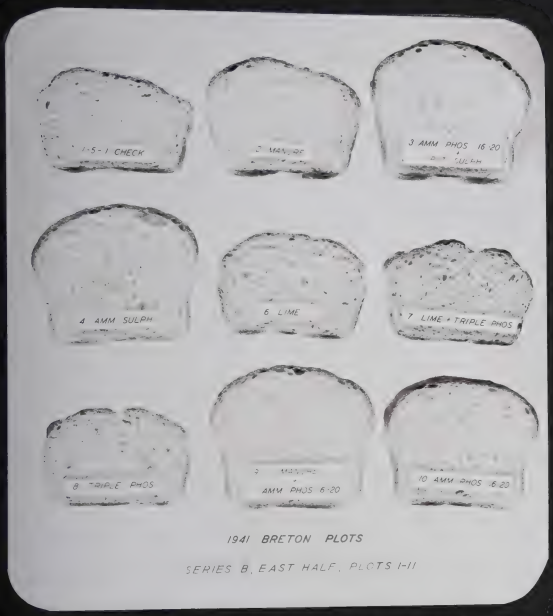
45. Breton 1940. Reward wheat after fallow. Series E. Note the loaves are much inferior to those from the clover plots (compare with 44).



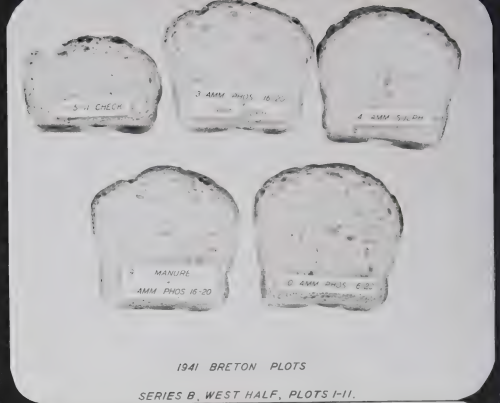
46. Breton 1940. Reward wheat after clovers. Series A. (plots 13-26). These plots were added in 1938.



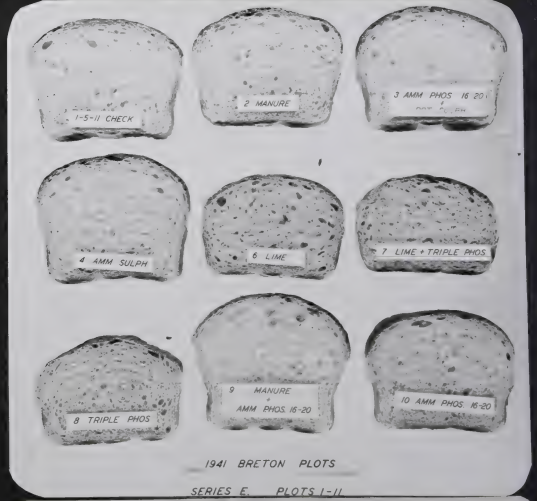
47. Breton 1940. Reward wheat after fallow. Series E. (plots 13-26). Even though these plots are relatively new, the loaves are inferior to those from plots after clovers.



48. Breton 1941. Thatcher wheat after clovers plowed under. Series B. Seasonal differences are great this year. Compare with 1940 (46) and 1938 (38). Note plots 3,4,9 and 10 produced the better bread.



49. Breton 1941. Thatcher wheat after clover, cut for hay. Series B. These loaves are similar to those shown in 48, but superior to those from fallow.



50. Breton 1941. Thatcher wheat after fallow. Series E. The checks here are better than in the clover series, but the others are inferior. Some of the fertilizers are inferior to the checks.

1941 BRETON PLOTS

SERIES B. PLOTS 13-26

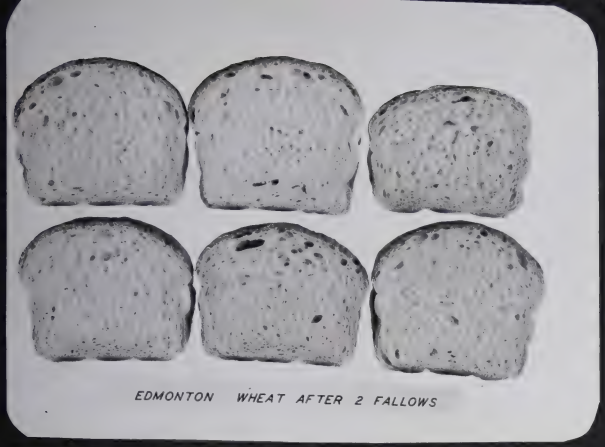
51. Breton 1941. Thatcher wheat after clovers. Series B. plots 13-26. Compare the effect of fertilizers here with those shown in 48.

1941 BRETON PLOTS
SERIES B. WHOLE PLOT.

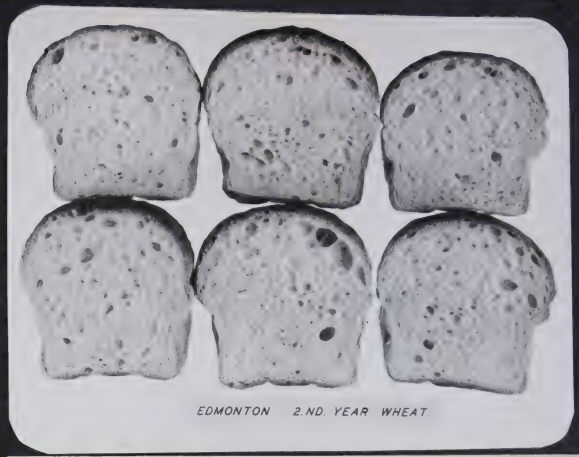
52. Breton 1941. Thatcher wheat after clovers Series B. These four plots are the same as shown in 51. Amm. nit. + Gyp. is better than the checks, this year. Other years there is little difference.

53. Breton 1942. Thatcher wheat after clover Series C. This season plots 2,3 are relatively poorer than usual and it is the first time in 12 yrs. that plot 8 (triple) has been better than the checks.(This year the Triple was 38%) new product.

54. Breton 1942. Thatcher wheat after fallow. Series E. Compare with 53.



57. Edmonton 1942. Bobs wheat after 2 fallows. Series B. plots 1-18, check, Am. Sul. Triple, 11-48, 11-48 + K_2SO_4, check. Generally there is no difference and all loaves are good.



58. Edmonton 1942, Bobs wheat after wheat Ser.A plots 1-18. Same fertilizers as in 57, but loaves are better...Even though the protein is about 2% less than for the previous picture.

Wheat at Edmonton:

55. Edmonton 1933. Wheat after fallow Series B. Plots 20-37. Left to right check, Am. Sul. Triple, 11-48, 11-48 + K_2SO_4.

56. Edmonton 1933. Wheat after wheat Series C. Plots 19-37. Left to right check, sobelsyn, amm.sul., Triple, 11-48, 11-48 + K_2SO_4.

Breton Plots 1933 (from Fleshers)

July 22, 1933 Series C barley. Dr. Wyatt in Plot 10. Looking diagonally across Plot 11 into Plot 10. (from Flesher collection) JR 2009

Breton Plots 1933 (from Fleshers)

Breton 1933. Barley following green manuring on Series C. Left to right: Check, NPK, N, LP, NP. (from Flesher collection) JR 2009

Breton 1933. Series G. Dr. Wyatt on left in Plot 5, and Ben Flesher on right in Plot 4. (from Flesher collection. Original caption had plot numbers reversed.) JR 2009

Date unknown. Breton Plots looking south-west. Note: no machine shed (so before 1972), no shelter belt, granary in west fence. (from Flesher collection). JR 2009

R.E (Erin) McAllister

(Ben) DR. WYATT & A. MacALLISTER

BRETON PLOTS FIELD DAY
1930's

BEN FLESHER FRONT
(extreme left)

These four photos were provided by Eelen Newton.

The date is clearly before 1960 because there is no cairn at the gate. Note there are no roadways between the Series and no paths between the plots. There are no power poles along the east fence and the spruce trees later found along that fence at Plot 6 are small or absent. The apparent fallow in the two left photos are probably Series E, and that seems to be confirmed by the Series labels in the south fence. JR 2009

JR 2009
Ben Flesher plowing down sweet clover in the early 1930s. (from Flesher collection).

First field day at the Breton Plots in 1931. Dean E. A. Howes front centre holding hat. J. D. Newton back row near left, F. A. Wyatt back row toward right. JR2009

Unveiling Cairn at Breton Plots, July 08, 1960.

Dr. Walter Johns, President, speaking
Dr. C. F. Bentley holding loudhailer JR 2009

Right rear--- Gordon Wyatt; Left rear--- Marjorie Wyatt McPhedron JR 2009

Dr. D. L. Lynch, Professor of Microbiology/Biochemistry at the Breton Plots in 1959. Plot 8 on left, Plot 9 on right. Note---no cairn yet. JR 2009

Gordon Wyatt and Ben Flesher at the Breton Plots, July 08, 1960. JR 2009

Gordon Wyatt and Marjorie Wyatt McPhedron at the recently unveiled cairn dedicated to their father F. A. Wyatt, Dr. J. D. Newton and B. F. Flesher. JR 2009

Ben (B.F) Flesher at the cairn dedicated to the work at the Breton Plots which are at the north-east corner of his farm. JR 2009

JR 2009

Dr. J. A. Toogood conducts a group on a tour of the Breton Plots. Photo was used in *Paydirt*, Cominco publication summer issue, July 1960.

A. R. Jordan, Department of Soils (Science) technician from late 1940s through the 1970s. JR 2009

Water erosion plots, established by Dr. Toogood near St. Albert in the 1950s. JR 2009

Date is unknown, but it was before Ben Flesher's death in 1974. Barley crop appears to be on Series B with oats between it and the east fence. Ben Flesher is in Plot 9 and unknown person in Plot 8. Height of spruce trees in fence line suggest a date about the time the cairn was dedicated, July 1960. JR 2009

Feeding trials using rats in late 1950s by Dr. C. F. Bentley JR 2009

ROTHAMSTED EXP. STATION
HARPENDEN, HERTS.

LABORATORIES, GARDEN ALLOTMENTS,
AND SOME OF THE EXPERIMENTAL FIELDS.
IN THE FOREGROUND THE FORMER DRIVEWAY
TO ROTHAMSTED MANOR HOUSE.

J. A. Toogood spent sabbatical here

BROADBALK FIELD
ROTHAMSTED EXP. STATION
HARPENDEN, HERTS.

WHEAT GROWN CONTINUOUSLY SINCE 1843.
STRIPS REPRESENT THE DIFFERENT FERTILIZER
TREATMENTS USED IN THE EXPERIMENT.

Brochure
Prepared by
Shirley Ross
in 2008

Mid-1950s: Background - the soil was hard and lumpy with poor tilth after 25 years of continuous wheat production. Foreground - the soil has much better structure and tilth after 25 years of cropping to a 5 year rotation of wheat-oats-barley-hay-hay.

1960 - Dedication of cairn by U of A President Walter Johns (left) and Dean of Agriculture Fred Bentley (right).

1960 - Professor John Toogood leads a tour of the plots.

1962 - John Taylor (driving) and summer student adjust plot seeder.

In 1985, U of A President, Myer Horowitz wrote: "I had heard about our Breton Plots but I didn't really know very much about them and so I welcomed Dr. James Robertson's invitation that I visit the station near Breton, Alberta. ...I have been excited ever since we returned from that visit because I think the experimentation at the Breton Plots represents the best of what a university is about."

1989 - Professor Jim Robertson points out fertilizer effects.

2007 - Tour participants look at shelterbelt tree varieties established in 1973.

2000 - Fred Bentley (left) and Jim Robertson (right) at the Breton Plots historic sign near Alsike. The Breton Plots were designated as an Alberta Registered Historic Resource in 1999.

The Breton Plots were established in 1929 near the village of Breton, 100 km southwest of Edmonton, by soil scientists at the University of Alberta. The plots were originally designed to find "a system of farming suitable for the wooded soil belt."

2001 - Dick Puurveen fall sampling.

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AN ALBERTA REGISTERED HISTORIC RESOURCE

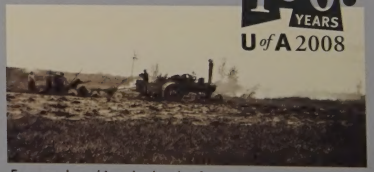
1930s - Ben Flesher, Breton Plots landowner, plows down sweetclover to add legume benefits to the soil in the grain-forage rotation of the Classical Plots.

THE BRETON PLOTS

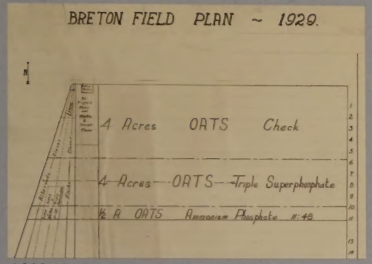
BRETON PLOTS 1928 - present

The Breton Plots are the oldest continuous, long-term plots on 'wooded soils' in North America.

100! YEARS U of A 2008



Farmers breaking the land, after trees were cleared from Grey-Wooded soil in Alberta.



1929 - Preliminary research conducted.

Early settlers on the wooded soils in Alberta faced great challenges.

"The old warning about trying to farm on the grey, wooded soil came out of the hard school of experience. What invariably happened was this. A settler, after heroic efforts to clear a little piece of land, harvested one good crop, and from then on watched yields rapidly decline till within a decade it was useless to continue cropping it." (P. MacDonald 1939, Country Guide and Nor-West Farmer)

Early 1930s - Field Day at the Breton Plots.

1930 - Demonstration of effects of fertilizers on wheat yields. Professor Frank Wyatt (left), co-founder of the Breton Plots, established the Department of Soils at the U of A in 1919.

Research confirmed that the soils were deficient in nitrogen, phosphorus and sulphur.

1939 - Ben Flesher with sons Bill (left) and Ken (right) in fertilized and unfertilized red clover plots.

An annual Field Day was held at the Breton Plots almost every year from 1931 to 1996, usually in July, with a program of speakers and a tour of the plots. The local community, District Agriculturalists, and others in Alberta Agriculture, worked with staff at the U of A to organize the event. Some years the Field Day also included showing of NFB films, displays of equipment, and lunch. In 1999, the 70th anniversary was celebrated with various activities. Since 2000, activities have included tours organized in conjunction with Brazeau County.

"Early in the summer of 1946 it was my privilege to travel to Breton with Drs. Wyatt and Newton. They were interested in looking over the plots to see how the crops were progressing. We stayed in Breton overnight. It rained and we were faced with the prospect of travelling on a graded dirt road for the first 28 miles of the return trip... it took 4 hours to cover the 28 miles. This is a reminder of some of the difficulties early workers encountered." (R.A. Hedlin, soil scientist)

The University of Alberta purchased the Breton Plots area (~ 20 acres) from the Flesher family in 1946.

1949 - Field Day at the Breton Plots.

1949 - Ladies Program at the Field Day. Ladies Programs were introduced in 1948 as part of the Field Day and continued until 1976.

1951 - Professor Fred Bentley speaks to the crowd at the Field Day.

"I wish I could give a pep talk that would bring out a thousand or more farmers to this annual event. Of course that number would swamp the place - but I'm not fooling when I say that every farmer on the gray-wooded soils and the transition soils should be there. Not just once either, but year after year - no man can take in a single afternoon all that is to be seen and learned from those plots. Come and see for yourself, that with proper methods, these poor gray soils can be farmed satisfactorily and profitably for a lifetime." (1948. District Agriculturalist, T. Kilduff, promotes the Breton Field Day in his "Around Field and Farmstead" column in the Leduc paper, The Representative)

1951 - Demonstration of rock picking machinery at the Field Day.